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B. TECH.
(SEM VII) THEORY EXAMINATION 2021-22
UTILIZATION OF ELECTRICAL ENERGY & ELECTRIC TRACTION

Time: 3 Hours

Total Marks: 70

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a.	Explain the utilization of Laws of illumination.
b.	Discuss the merits of electric tractions.
c.	Write any two advantages of the electric resistance welding.
d.	Write any two significances of Induction Heating.
e.	Discuss the limitations of Refrigeration and Air Conditioning.
f.	Discuss the advantages of window air conditioners.
g.	Differentiate between the design of indoor lighting and outdoor lighting systems.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a.	Explain the any ten advantages and disadvantages of electric heating.
b.	Discuss the electric resistance welding process with a neat sketch and relevant expressions.
c.	Differentiate between the Refrigeration and Air Conditioning. Also explain the following terms: (i) Speed time curve and its simplification, (ii) Average and schedule speeds (iii) Tractive effort and (iv) Specific energy consumption
d.	Write a short notes on the following: (i) Domestic refrigerator and (ii) Water cooler (iii) Power Electronic control of DC and AC traction drives
e.	State and explain the salient features of traction drives. What are the advantages and disadvantages of this drives?

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Discuss any ten applications of electrolysis process with a neat sketch and relevant expressions.
(b)	Write a short note on the "Electronic welding control Electrolyte".

4. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Define "Electric arc heating". What are the features and limitations of this heating process?
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(b)	Define the following: (i) Mechanics of train movement and (ii) Types of air conditioning (iii) Requirements of good lighting
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5. Attempt any *one* part of the following:

7 x 1 = 7

(a)	Write a short notes on the following: (i) Coefficient of adhesion and its influence and (ii) Types of electric traction (iii) Series-parallel control of dc traction drives (iv) Advantages and disadvantages of diesel electric traction
(b)	What do you understand by " Electric Arc Welding "? Explain in details.

6. Attempt any *one* part of the following:

7 x 1 = 7

(a)	What do you mean " Induction Heating "? Discuss the advantages and disadvantages of this heating.
(b)	State and prove " Laws of Electrolysis ". Also discuss the utilizations and drawbacks of this law.

7. Attempt any *one* part of the following:

7 x 1 = 7

(a)	State and explain " Laws of illumination ". What are the limitations of this law?
(b)	Discuss the merits and demerits of " Dielectric Heating ". Also mention its utilizations.